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LANGUAGE LABORATORY SPECIFICATIONS, AN ADMINISTRATOR'S GUIDE.

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IN ORDER TO INFORM ADMINISTRATORS AND PURCHASING AGENTS OF THE MINIMAL SPECIFICATIONS FOR THE SIMPLE, YET EFFECTIVE INSTALLATION OF A QUALITY LANGUAGE LABORATORY, THIS GUIDE OFFERS BASIC INFORMATION ABOUT COSTS, GENERAL AND FUNCTIONAL SPECIFICATIONS, BIDDING INSTRUCTIONS, AND REPAIR SERVICES. THE TEACHER CONSOLE AND STUDENT POSITIONS IN THE LABORATORY ARE DESCRIBED IN DETAIL. INCLUDED ALSO ARE FORMS DESIGNED TO BE COMPLETED AND REPRODUCED BY SCHOOLS ADVERTISING FOR LANGUAGE LABORATORY BIDS, AND A SIMPLE LAYOUT OF A 24- OR 30-POSITION LABORATORY. (AB)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Language Laboratory SPECIFICATIONS

an administrator's guide

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Foreign Language Consultant
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State of Nevada
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FOREWORD

TO SCHOOL ADMINISTRATORS

and PURCHASING AGENTS

This booklet is designed to provide you with simple yet effective specifications for a language laboratory installation. If followed, these specifications should provide your school with an effective yet inexpensive electronic classroom.

Remember that language laboratories are not designed to teach - only to drill what has already been taught. The laboratory is a highly complex piece of electronic engineering. These specifications are established as minimun guidelines and care should be taken to follow them closely. Any deletions may seriously affect the quality of the installation but any desired additions may be included providing the advantages are worth the extra expense.

The language laboratory, when evaluated on a per pupil-per day cost, is inexpensive. The educational advantages have been found overwhelmingly worthwhile in hundreds of studies.

Again, while explanations are given for the various sections of the specifications, remember that the installation is only a piece of hardware and that the teacher and the teaching materials are the real key to your modern foreign language program.

NOTES ON THE SPECIFICATIONS

"Instructions to Bidders": This page is designed to give detailed and specific information to bidding concerns. Before reproducing be sure to fill in the correct dates, number of student positions, and city and county in all spaces indicated in script.

"General": This page further elaborates bidding. Again, be sure to fill in the necessary correct information in the spaces written in script.

"Functions": This details what the laboratory equipment must do. Especially important is item No. 5 which is the basic motivation for each student to respond to each item. This should be checked by school personnel after installation of the laboratory but before final acceptance and payment.

"Bidder's Services": Service is a problem in most Nevada schools. These are detailed to insure proper service during the "de-bugging" period. Any equipment of this nature will invariably have some minor faults that will only become apparent with use.

Please notice that the school is responsible for providing necessary A.C. power to the equipment. This reduces total cost by freeing the bidder from local ordinances, licenses and other regulations.

"Equipment": The teacher's console is the most expensive laboratory item. The equipment specified should perform well and provide good service.

Poor supervision of students is the biggest single contributor to language laboratory maintenance - students love to fiddle and poke. Since the teacher does not "teach" in the laboratory - almost all of the program is on tape - the students do not need to see the teacher. The elevated position of the teacher at the rear of the room permits close supervision despite the booth partitions. This position also facilitates the use of projectors by the teacher using the laboratory audio system.

The tape recorder specifications are for a high quality machine. Should the best possible classroom type tape recorder be desired the words "or mechanical" should be removed from the fourth sentence in the last paragraph on Page 5. A sentence reading "three separate motors shall be provided for play-record, fast forward and fast reverse" should be added between the present fourth and fifth sentences.

"Student Positions" are again designed for functional use and low maintenance. The required number of tables will have to be inserted in the first line of this section. Six positions to a table or row are standard.

Should you desire an electronic classroom that can also be used for regular instruction in foreign languages as well as in other subjects, delete all references to dividers and partitions. This can be done by eliminating the text from "...separated at thirty inch intervals" through the end of the paragraph and item (b) on "Instruction to Bidders".

Use of the laboratory for a classroom will seriously hasten its deterioration because of the difficulty in keeping equipment from being carelessly handled.

Transistors have several advantages over tubes in audio applications. They provide better fidelity with lower power and seldom, if ever, need replacement. In addition, they are much more compact and rugged.

Lastly, please notice that chairs are not usually included in language laboratory bidding but can be included simply by deleting the word "not" from the final sentence. As standard school items chairs cannot be claimed for reimbursement under Title III of the N.D.E.A. unless permanently bonded to the student position.

SUMMARY

The enclosed specifications, with appropriate insertion of dates and names, are intended to be reproduced as specifications by schools advertising for bids on language laboratories. A twenty-four position laboratory as specified should cost between $5,000 and $5,500 - one-half of which can be borne by the State under the N.D.E.A., provided proper prior application is made.

After bids close at noon at the specified date and prior to the presentation of the bids to the Board of Trustees, they should be screened by the Foreign Language Consultant of the State Department of Education (item b, "Instructions to Bidders"). No bid should be submitted by the school administrator to the Trustees unless it meets the advertised specifications as determined by the Consultant. This service to schools will aid the purchase of only good quality equipment.

COSTS OF LANGUAGE LABORATORIES

One of the greatest misconceptions about language laboratories is their cost. Upon close examination one finds that they are very reasonable in terms of student use.

Bell Telephone Laboratories have estimated a <u>minimum</u> increase in learning of twenty-five percent with regular use of laboratory facilities - certainly worth any reasonable investment.

ACTUAL INSTALLED COST OF TYPICAL LABORATORIES IN NEVADA

1.	Portable listen-respond, twelve students	$ 1,350.00
2.	Permanent listen-respond, twenty-four students, with booths	5,000.00
3.	Permanent listen-respond, thirty students, tables with no dividers	4,650.00
4.	Complete listen-respond-record, thirty students, booths (University of Nevada installation)	13,000.00

The State (Title III, NDEA) will pay one-half the cost of approved language laboratory installations.

COMPUTING USE COST OF LANGUAGE LABORATORIES

The typical secondary school language laboratory is a listen-respond installation of thirty student positions costing $6,000.00. Since the State will pay one-half of the cost, school cost is $3,000.00.

Cost to school	3,000.00
Cost per year, 5 year amortization	600.00
Cost per day, 180 day year	3.33
Cost per class, 6 classes day	.56
Cost per student, 25 per class	.02
Cost per student, two classes per period	.01

INSTRUCTION TO BIDDERS

All bids must be submitted on or before 12 noon, *month*, *day*, *year*.

(a) Base bid to be on a complete furnishing of all equipment as specified, including installation of same ready for operation. This will include three lesson sources at the teacher's station; to include two tape sources and one disk player, and *number of positions* student listen-respond positions.

(b) Any bid must be given approval by the State Department of Education prior to submission for consideration by the *appropriate* County School Trustees.

(c) Bidder shall stipulate date of delivery of equipment and completion date of installing same; but in no case later than *month*, *day*, 1964.

(d) All bid quotations shall be f.o.b. *city*, Nevada.

(e) The bidder shall review the area and confirm all layouts of the work to be completed.

(f) Student booths will be considered part of the base bid.

THE UNDERSIGNED BIDDER HAVING READ ALL THE SPECIFICATIONS, THE CALL FOR BIDS, AND INSTRUCTIONS TO BIDDERS, AND AGREEING TO COMPLY WITH SAME.... HEREWITH SUBMITS A BASE BID TO COMPLETELY FURNISH AND INSTALL AS SPECIFIED FOR A TOTAL AMOUNT OF

_____($_____)

A certified or cashier's check in the amount of $_____ accompanies this bid. Successful bidder shall provide a $500 performance bond as a bid bond.

Bidder will start installation on or about_____ and complete same on or before_____.

Signed:_____

Address_____ Phone_____ Bidder_____

SPECIFICATIONS FOR LANGUAGE LABORATORY SYSTEMS

I. GENERAL

This specification covers the essential details of a *number of positions* station Listen-Respond Language Laboratory System to be furnished and installed in the *name of school* School, *city*, Nevada.

Substitution of equipment is permitted providing the equipment offered is, in the opinion of the engineer and the *appropriate* County School Board of Trustees, equal in quality and performance to the system described herein. Any such substitution shall state the name of the manufacturer and the amount to be added to or deducted from the price of the specified equipment at the time the bid is submitted. All bids proposing such substitute equipment shall be accompanied by complete descriptive literature and technical data covering each item of the proposed equipment. Failure to do so shall disqualify the bid proposal.

The intent of these specifications is to provide a modern, functional, dependable, and completely satisfactory operating electronic system to correlate all the necessary functions of teaching languages. All equipment and installation material required shall be furnished whether or not enumerated herein or shown on the plans.

All equipment described herein shall be a product of a manufacturer of established reputation and experience.

The manufacturer of this equipment shall provide two complete sets of operating instructions, including circuit diagrams and other information necessary for proper installation, operation, and service maintenance. The contractor shall guarantee the equipment herein specified.

to be free from defect of material and workmanship under normal use for a period of one year from date of acceptance.

The system shall be required but not limited to perform the following functions.

II. FUNCTIONS

1. Provide facilities for each student to hear his own voice, through his own earphones, as he speaks through his own microphone, as he listens to the lesson source.
2. Provide private voice inter-communication between student and instructor.
3. Provide facilities for instructor to monitor and set volume level of lesson sources by means of a visual volume level meter calibrated in color for simplicity.
4. Provide facilities for both instructor and student to completely control volume on their own earphones whether on lesson sources or communication.
5. Provide facilities to allow monitoring and recording of any individual student at the instructor's location without the student being able to detect that he is being monitored.
6. Provide all-call from the instructor to all student positions simultaneously, at the same time automatically disconnecting all lesson sources and allowing the instructor to be heard clearly and distinctly by all students.

7. Provide facilities for the instructor to transfer recitation of an student or students from their microphones to the earphones of the balance of the class.

8. Provide facilities for the instructor's unit to be used as a student unit.

9. Provide facilities on the instructor's control panel for numbering and arranging the individual student switches in the exact manner as the classroom student booths are laid out, so instructor can easily locate the proper switch for each student booth.

10. Provide facilities so that the student from his own booth may record on a master tape recorder located at the teacher's console unit, so that the resulting tape contains the lesson, the student response, and any comments of the instructor.

III. BIDDER'S SERVICES

A. Language Laboratory equipment is of such a nature that instruction of operating personnel and conveniently available repair service and maintenance are essential to the efficient utilization of the equipment. For this reason, the following service requirements are included:

1. The vendor must deliver and install the equipment set up and ready to operate, and must check to make sure that all accessories are present and operable.

2. He must check the equipment at time of delivery to determine that it operates properly in the location where it is to be used.

3. The vendor must be prepared to furnish authorized factory repair service for the equipment.

4. He must maintain in stock such cosummable items as lamps, tubes, belts, etc., that are necessary to provide for the normal operation of the equipment.

5. The vendor must maintain and have immediately available a reasonable stock of spare mechanical parts for the equipment.

6. It is required that the successful bidder shall install the complete laboratory system, check out the system, and instruct designated personnel in laboratory operation and maintenance.

7. It is required that all controls be clearly labeled, in easily understood terms, as to function or use.

B. The bidder shall not be responsible for the a.c. power wiring from the fuse box to the laboratory, nor for bringing the power lines to a terminal on booth row-ends and/or the console.

C. The bidder is requested to state the terms of his warranty for one year against defect in materials and workmanship and his terms for payment.

IV. EQUIPMENT

A. TEACHER'S CONSOLE

The teacher's console shall be of metal or finished wood, of furniture quality, approximately thirty inches high, thirty to forty inches deep and sixty or more inches long.

It shall be equipped with three student lesson sources, two tape and one disk player, and necessary switches, wiring, amplifiers, power supplies and other circuity necessary to perform the functions specified in Part II.

The headphone-microphone sets shall be included. Three additional lesson source imputs for external amplifiers shall be included as well as "Guest" listening facilities in parallel with the instructor's headphones. Headphones and microphones shall meet the specifications for student headphones and microphones.

The console is to be installed at the rear of the student positions on a raised wooden platform six feet by ten feet by nine inches. The platform shall be considered a part of the console and included in the bid price.

Tape speeds shall be 7-1/2 and 3-3/4 ips. With a tape speed of 7-1/2 ips the frequency response of the unit shall be from 50 - 12000 cps within 2 db; it shall have a signal-to-noise ratio of atleast 45 db, preferably 50 db; flutter and wow shall not exceed 0.3% preferably 0.2%. Harmonic distortion shall not exceed 2.0%, preferably 1.0%, at the normal operating level. Recording shall be standard half track. Fast forward and fast reverse shall be provided, as well as positive electrical or mechanical braking action. The unit shall also (1) permit monitoring from the tape during recording, (2) be equipped with

a VU-meter for determining volume, and (3) have a tape index counter. All controls shall be clearly labeled as to function.

Imput impedances and levels should be consistent with other components of the system. Output impedances should provide for either headphones or power amplifiers as required by the particular installation.

The disk player should be of the manual type and provide for use of standard and microgroove recordings, including the speeds of 78, 45, 33-1/3 rpm (16-2/3 rpm desirable). It should accommodate disks up to 12 inches in diameter. A diamond stylus of 0.003 in. radius should be provided for standard recordings and a diamond stylus of 0.007-0.001 in, radius should be provided for microgroove recordings. The tracking force (stylus pressure) shall not exceed 8 grams. The player should have an over-all frequency response of 50-12000 cps $\pm$ 2 db.

B. STUDENT POSITIONS

Student positions shall consist of four tables of furniture quality with a formica or other smooth surface. Each table shall accommodate six (6) students, separated at thirty inch intervals by dividers of perforated steel enclosing fiber glass acoustical installation. Dividers shall extend a minimum of eight inches from the rear of the table. The front of each position shall be acoustically treated to a height of eight inches. Dividers shall be at least sixteen inches in height from the table surface.

Each student position shall contain a metal plate, flush mounted, containing all necessary connectors, switches, and

circuity. Volume controls may be mounted on the plate or on student earphones.

Connecting to this by means of one or more one-quarter inch telephone jacks shall be the student headphones and microphones. The microphone shall be securely attached to the earphones on a short adjustable boom permitting a position close to the mouth. The combination shall meet the following electrical specifications:

Microphone: ceramic or dynamic unit, frequency response of 75-9,000 c.p.s. ± 2 d.b. Crystal units are not acceptable.

Headphones: dynamic units, frequency response of 50-12,000 c.p.s. ± 2 d.b. Crystal units are not acceptable.

Amplifier: a frequency response of not less than 75-9000 cps (preferably 50-12000 cps) within ± 2 db, with harmonic distortion not to exceed 3.0% and a signal-to-noise ratio of at least 50 db at the normal operating level. Two imputs are necessary: one for the student microphone and one for the line from the master source. Two outputs should be provided: one for the student's earphones and one to connect with the instructor's console. A restricted-range volume control shall be included, either as a part of the amplifier or of the earphone system, to insure adequate volume.

Student amplifiers and/or pre-amplifiers must be fully transistorized, obtaining the necessary voltage and power from a central d.c.

power supply to be housed within the teacher's console or control center.

Chairs shall not be considered as part of the laboratory installation.

LANGUAGE LABORATORY LAYOUT